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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,580	06/15/2005	Rainer Pietig	DE 020318	9054
65913	7590	03/19/2008	EXAMINER	
NXP, B.V.			JONES, STEPHEN E	
NXP INTELLECTUAL PROPERTY DEPARTMENT			ART UNIT	PAPER NUMBER
M/S41-SJ			2817	
1109 MCKAY DRIVE			NOTIFICATION DATE	
SAN JOSE, CA 95131			03/19/2008	
			DELIVERY MODE	
			ELECTRONIC	

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/538,580

Filing Date: June 15, 2005

Appellant(s): PIETIG, RAINER

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Michael Ure  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 2/4/08 appealing from the Office action  
mailed 8/6/07.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

## (7) Claims Appendix

A substantially correct copy of appealed claims appears on pages 10-11 of the Appendix to the appellant's brief. The minor errors are as follows: In claim 4, the phrase "120.degree.." should read as --120 degrees--.

#### **(8) Evidence Relied Upon**

US Patent Application Publication 2001/0028280 A1 (Maruhashi et al.)

Marusawa et al., JP09294006A

6,710,671 Tanaka (cited in the 3-2004  
attached 892 form)

## **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marusawa et al. (JP09294006) in view of Maruhashi et al. (US 2001/0028280) (all of record).

Marusawa (Figs 2-4) teaches an irreversible (i.e. nonreciprocal) circuit device including: a plurality of strip conductors (e.g. 12a-c) that cross over each other and are insulated from each other by ferrite layers (11); and a permanent magnet (e.g. 23 in Fig. 4) provides biasing; and the three conductors cross each other at equal angles (i.e. at 120 degrees) as shown in Figs. 2-3.

However, Marusawa does not teach that the material where the conductors cross each other is a hard magnetic material which is permanently magnetized in a spatial direction perpendicular to the conductor planes.

Maruhashi teaches a hard ferrite magnet material (i.e. a permanent magnet material) can be used instead of using soft ferrite in combination with a permanent magnet located above the nonreciprocal device (see [0056] of Maruhashi).

It would have been considered obvious to one of ordinary skill in the art to have substituted a hard ferrite material such as taught by Maruhashi in place of the soft ferrite material in the Marusawa device, because it would have provided the advantageous benefit of a further miniaturized device because the permanent magnet could be eliminated since the hard ferrite provides the necessary bias such as taught by Maruhashi, thereby suggesting the obviousness of such a modification.

#### **(10) Response to Argument**

Regarding Claims 1 and 4, Appellant argues that applying a substitution of a hard ferrite material (i.e. a permanent magnet) for the soft ferrite material such as taught by

Maruhashi et al. in the Marusawa device would not have been obvious because neither reference teaches a material suitable for use in the fabrication technique of Marusawa in which the magnetic material would be applied as a sinterable foil in the course of fabrication in the like of layers of other materials. Also, Appellant states that there is no evidence that such a hard magnetic material (exists) that is capable of being worked in this manner.

Appellant's arguments are not persuasive.

In response to appellant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, it is merely the general teaching of using a hard ferrite (i.e. a permanent magnet material) in place of the soft ferrite of a nonreciprocal device to eliminate the need for having both a permanent magnet in combination with a soft ferrite and thus providing the ability and advantage to make the Marusawa device smaller that is being applied in the rejections as pertaining to Maruhashi. Also, when modifying the device structure of Marusawa to obtain the advantage of further miniaturization, obviously the method steps would have to be modified as well to incorporate the change

in structure as one of ordinary skill in the art clearly would have recognized.

Furthermore, the present claims are device/product claims and thus the method of manufacturing the device is not particularly relevant to the rejections.

Additionally, the argument regarding the fabrication technique not being workable as a sinterable foil appears to be a mere allegation lacking supporting evidence that the combination is not workable. In fact, contrary to Appellant's argument, without evidence teaching that sintering hard ferrites is not workable, one of ordinary skill in the art would expect that such a modification would be workable. Nevertheless, since this argument of forming the magnetic material as a sinterable foil was first specifically argued in regard to the pre-appeal conference which is not an actionable period in prosecution, the examiner has not previously been afforded an opportunity to specifically rebut this assertion. Therefore, attached is a Form 892 citing as evidence US Patent 6,710,671, Tanaka. This reference is provided merely to rebut the Appellant's arguments and does not change or affect the formulation of the rejections of record (i.e. it is not a new grounds of rejection) (see MPEP 1207.03). Tanaka (e.g. see Fig. 6B and Col. 7, lines 31-44) teaches non-reciprocal devices and clearly provides evidence that thin (i.e. foil) hard ferrite material is sinterable to other layers in a similar manner to the sintered structure taught by Marusawa. One of ordinary skill in the art would indeed clearly find obvious the modification as proposed in the rejections, especially since sintering thin hard ferrite materials with other layers is indeed workable as is generally taught by Tanaka.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Stephen E. Jones/

Primary Examiner, Art Unit 2817

Conferees:

/Robert Pascal/

Supervisory Patent Examiner, Art Unit 2817

/David S Blum/

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